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NOTICE OF ALLOWANCE AND FEE(S) DUE

26119 7590 12/01/2009

KLARQUIST SPARKMAN LLP
121 S.W. SALMON STREET
SUITE 1600
PORTLAND, OR 97204

EXAMINER

TECKLU, ISAAC TUKU

ART UNIT

PAPER NUMBER

2192

DATE MAILED: 12/01/2009

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/628,054	07/25/2003	Vinod K. Grover	3382-65598-01	4135

TITLE OF INVENTION: SOFTWARE DEVELOPMENT INFRASTRUCTURE

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	03/01/2010

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. **PROSECUTION ON THE MERITS IS CLOSED.** THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN **THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE** OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. **THIS STATUTORY PERIOD CANNOT BE EXTENDED.** SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

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B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

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III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

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INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

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26119 7590 12/01/2009
KLARQUIST SPARKMAN LLP
121 S.W. SALMON STREET
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PORTLAND, OR 97204

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I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

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10/628,054	07/25/2003	Vinod K. Grover	3382-65598-01	4135

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nonprovisional	NO	\$1510	\$300	\$0	\$1810	03/01/2010

EXAMINER	ART UNIT	CLASS-SUBCLASS
TECKLU, ISAAC TUKU	2192	717-120000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a **Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____
 (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
 3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY AND STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
☐ Publication Fee (No small entity discount permitted)
☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
☐ Payment by credit card. Form PTO-2038 is attached.
☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

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This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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26119	7590	12/01/2009	EXAMINER	
KLARQUIST SPARKMAN LLP 121 S.W. SALMON STREET SUITE 1600 PORTLAND, OR 97204			TECKLU, ISAAC TUKU	
			ART UNIT	PAPER NUMBER
			2192	
DATE MAILED: 12/01/2009				

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 1039 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 1039 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice of Allowability	Application No.	Applicant(s)	
	10/628,054	GROVER ET AL.	
	Examiner	Art Unit	
	ISAAC T. TECKLU	2192	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 07/15/2009.
2. ☒ The allowed claim(s) is/are 1-2, 5, 7, 10-11, 14, 36-37, 39-41, and 43-54 (renumbered as 1-26).
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s) 1. <input type="checkbox"/> Notice of References Cited (PTO-892) 2. <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____ 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material	5. <input type="checkbox"/> Notice of Informal Patent Application 6. <input type="checkbox"/> Interview Summary (PTO-413), Paper No./Mail Date _____ 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance 9. <input type="checkbox"/> Other _____.
/Isaac T Tecklu/ Examiner, Art Unit 2192	/Tuan Q. Dam/ Supervisory Patent Examiner, Art Unit 2192

DETAILED ACTION

1. This action is responsive the application filed on 07/25/2003.
2. Claims 12, 16, 18-21, 24-25, 33, and 35-42 have been cancelled.
3. Claims 1-11, 13-15, 17, 22-23, 26-32, 34, and 43 are allowed.

EXAMINER'S AMENDMENT

4. An examiner's amendment to the record appear below. Should the change and/or additions be unacceptable to the Applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such amendment, it MUST be submitted no later than the payment of issue fee.

Authorization for examiner's amendment was given in a telephone interview with Cory A. Jones, Reg. No. 55,307, on November 16, 2009 to put the case in condition for allowance.

5. The Claims are amended, as presented below, to adopt the changes provided by Applicant's representative on November 16, 2009.

IN THE CLAIMS:

The listings of claims below will replace all prior versions, and listings, of claims in the application.

Please cancel claims 35-37 and 39-41, and amend claims 1, 4-5, 15, 28, 31-32, 34, and 43 as follows:

1. **(Currently Amended)** One or more computer-readable media with computer-executable instructions for implementing a software development architecture comprising:

- a software development scenario-independent intermediate representation format;
- one or more exception handling models operable to support a plurality of programming language specific exception handling models for a plurality of different source languages;
- a type system operable to represent the type representations of the plurality of different source languages; and
- a code generator operable to generate code targeted for a plurality of execution architectures;

wherein the code generator constructs one or more software development components of a plurality of different software development tools using the software development scenario-independent intermediate representation format, the one or more exception handling models operable to support the plurality of programming language specific exception handling models for the plurality of different source languages, and the type system operable to represent the plurality of different source languages; [[and]]

wherein the code generator further integrates the one or more software development components of the plurality of different software development tools into a software development scenario-independent framework; and

wherein the code generator further creates the plurality of different software development tools ~~using by compiling~~ the one or more software development components and the software development ~~architecture~~ scenario-independent framework.

2. (Previously Presented) The one or more computer-readable media of claim 1 wherein the architecture is scalable to produce target software development tools ranging from lightweight just-in-time (JIT) compilers to whole program optimizing compilers.

3. (Original) The one or more computer-readable media of claim 1 wherein the architecture can be configured to produce a target software development tool with varying ranges of memory footprint, compilation speed, and optimization.

4. **(Currently Amended)** The one or more computer-readable media of claim 1 wherein the software development architecture is operable to produce a software development tool modifiable by combining a modification component with the software development ~~architecture~~ scenario-independent framework.

5. **(Currently Amended)** The one or more computer-readable media of claim 1 wherein the software development architecture is operable to produce a software development tool by dynamically linking a binary version of the software development ~~architecture~~ scenario-independent framework to a modification component.

6. (Original) The one or more computer-readable media of claim 1 wherein the intermediate representation format is extensible at runtime of a software tool employing the intermediate representation format.

7. (Previously Presented) The one or more computer-readable media of claim 1 wherein the architecture is combinable with the one or more software development components.

8. (Original) The one or more computer-readable media of claim 7 wherein the one or more software development components comprise data describing a target software development tool.

9. (Original) The one or more computer-readable media of claim 7 wherein the one or more software development components provides target execution architecture data to the code generator.

10. (Original) The one or more computer-readable media of claim 7 wherein the one or more software development components provide one or more type-checking rules to the type system.

11. (Original) The one or more computer-readable media of claim 7 wherein one or more software development components provide a set of class extension declarations to the architecture.

12. (Canceled)

13. (Previously Presented) The one or more computer-readable media of claim 7 wherein the plurality of different software development tools comprises a native compiler.

14. (Previously Presented) The one or more computer-readable media of claim 7 wherein the plurality of different software development tools comprises a JIT compiler.

15. **(Currently Amended)** A method of creating a plurality of different target software development ~~tool~~ tools, the method comprising:

receiving at least one computer-readable specification specifying functionality specific to one or more software development scenarios, wherein the at least one computer-readable specification specifies the following software development scenario functionality of the plurality of different target software development ~~tool~~ tools:

- target processor execution architecture;
- type checking rule set;
- managed execution environment;
- input programming language or input binary format; and
- compilation type;

creating at least one software development component for the plurality of different software development ~~tool~~ tools from the at least one specification;

integrating the at least one software development component for the plurality of different software development ~~tool~~ tools into a software development scenario-independent framework; and

compiling, at least in part, the at least one software development component and framework to create the plurality of different target software development ~~tool~~ tools;

wherein the computer-readable specification comprises functionality for processing an intermediate representation format capable of representing a plurality of different programming languages; and

wherein the intermediate representation format comprises one or more exception handling models capable of supporting a plurality of programming language-specific exception handling models for the plurality of different programming languages.

16. (Canceled)

17. (Original) The method of claim 15 wherein software development components created from a plurality of computer-readable specifications for a plurality of respective software development scenarios are integrated into the framework.

18-21. (Canceled)

22. (Original) The method of claim 15 wherein the computer-readable specification comprises one or more rulesets for type-checking one or more languages.

23. (Original) The method of claim 15 wherein the computer-readable specification comprises a set of class extension declarations specific to one or more of the software development scenarios.

24. (Canceled)

25. (Canceled)

26. (Previously Presented) The method of claim 15 wherein the intermediate representation comprises type representations capable of representing the type representations of the plurality of different programming languages.

27. (Original) The method of claim 15 further comprising:
integrating custom code specific to one of the software development scenarios.

28. (Currently Amended) The method of claim 15 wherein the plurality of different software development ~~tool~~ tools comprises [[one]] at least two of the group consisting of: a native compiler, a JIT compiler, an analysis tool, and a compiler development kit (CDK).

29. (Original) The method of claim 15 wherein the computer-readable specification specifies functionality of one of the group consisting of: a Pre-JIT compiler functionality, optimizer functionality, and defect detection tool functionality.

30. (Original) One or more computer-readable media containing one or more computer-executable instructions for performing the method of claim 15.

31. (Currently Amended) A method of creating a plurality of different target software development ~~tool~~ tools from a common framework, the method comprising:

configuring the common framework based on one or more characteristics of the plurality of different target software development ~~tool~~ tools;

~~integrating creating~~ software development components comprising one or more characteristics of the plurality of different target software development ~~tool tools~~ ~~[[into]]~~ ~~from~~ the common framework; ~~[[and]]~~

~~integrating the software development components into a software development scenario-independent framework; and~~

creating the plurality of different target software development ~~tool tools~~ ~~from~~ by compiling the software development components and the integrated common software development scenario-independent framework;

wherein the one or more characteristics comprises an input language chosen from a plurality of different programming languages supported by the common framework for the plurality of different target software development ~~tool tools~~; and

wherein the common framework comprises exception handling models capable of supporting a plurality of programming language-specific exception handling models for the plurality of different programming languages.

32. **(Currently Amended)** The method of claim 31 wherein the one or more characteristics can further comprise the amount of memory necessary for the plurality of different target software development ~~tool tools~~ to execute on a target architecture, the speed at which the plurality of different target software development ~~tool tools~~ will execute on a target architecture, a input binary format for the plurality of different target software development ~~tool tools~~, or the target architecture for the plurality of different target software development ~~tool tools~~ ~~to execute on a target architecture.~~

33. (Canceled)

34. **(Currently Amended)** A method of producing a plurality of different inter-compatible software development tools, the method comprising:

receiving a software development architecture that is operable to support a plurality of different programming languages, wherein the software development architecture further comprises:

classes that are extensible through a set of declarations;

functionality for an intermediate representation format used by both the first and second software development tools; and

functionality for a type system used by both the first and second software development tools;

creating software development components for the plurality of different software development tools from the software development architecture;

creating a first software development tool by integrating the software development components into a software development architecture that is operable to support a plurality of different programming languages software development scenario-independent framework and compiling the software development components and the software development scenario-independent framework; and

creating a second different software development tool based on the first software development tool and the software development components, wherein the second software development tool dynamically links to a binary version of the software development architecture software development scenario-independent framework;

wherein the software development architecture comprises functionality for exception handling models operable to support programming-language specific exception handling models for the plurality of different programming languages, and the software development architecture is used by both the first and second software development tools.

35-37. (Canceled)

38. (Canceled)

39-41. (Canceled)

42. (Canceled)

43. (Currently Amended) A method of creating a plurality of different software development ~~tool~~ tools, the method comprising:

receiving at least one computer-executable file comprising:

an intermediate representation capable of representing a plurality of different programming languages and computer executable images;

one or more exception handling models capable of supporting a plurality of programming language specific exception handling models for the plurality of different programming languages;

a type system capable of representing the type representations of a plurality of source languages; and

a code generator capable of generating code targeted for a plurality of execution architectures;

creating one or more software development components of a plurality of different software development tools from the at least one computer-executable file;

linking a integrating the one or more software development component components of the plurality of different software development tools to the at least one computer-executable file into a software development scenario-independent framework using at least one class extension declarations declaration; and

creating the plurality of different software development ~~tool tools~~ [[via]] by compiling, at least in part, the linked one or more software development component components and computer-executable file the software development scenario-independent framework.

--End--

Allowable Subject Matter

6. The following is an examiner's statement of reasons for allowance:

As applicant pointed out under Remark section, pages 11-14, Gordon et al. (US 6,560,774 B1), taken either singly and/or in combination with other cited prior arts, do not teach the combined functional limitations of creating at least one software development component for the plurality of different software development tools from the at least one specification; integrating the at least one software development component for the plurality of different software development ~~tool~~ tools into a software development scenario-independent framework; and compiling, at least in part, the at least one software development component and framework to create the plurality of different target software development tools; wherein the computer-readable specification comprises functionality for processing an intermediate representation format capable of representing a plurality of different programming languages; and wherein the intermediate representation format comprises one or more exception handling models capable of supporting a plurality of programming language-specific exception handling models for the plurality of different programming languages, as recited in such manners in each of independent claims 1, 15, 31, 34, and 43.

Prior arts of record do not teach and/or suggest these claimed limitations, thus, all remaining pending claims 1-11, 13-15, 17, 22-23, 26-32, 34, and 43 are allowed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ISAAC T. TECKLU whose telephone number is (571) 272-7957. The examiner can normally be reached on M-TH 9:300A - 8:00P.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Q. Dam can be reached on (571) 272-3695. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Isaac T Tecklu/
Examiner, Art Unit 2192

/Tuan Q. Dam/
Supervisory Patent Examiner, Art Unit 2192